

**AgEcon 315:  
Follow the Grain  
Thursday, 3.00 - 5.00 p.m.**

**Instructors:**

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Phil Bruckner, Dept. of Plant Sciences and Plant Pathology, 407 Leon Johnson, 994-5127, bruckner@montana.edu  
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**Course description:**

*Goals and Purposes of the Course*

This course provides students with an integrated view of the science, technology, production practices, product handling, product marketing system, and end uses for wheat and barley, the two most important crops grown in Montana. The course will emphasize the links between, on the one hand, science and technology and, on the other hand, the economic and political forces that matter in determining the entire structure of the grain industry. The course, almost literally, will follow the grain, beginning with an examination of the role of genetic research, plant breeding, and field trials in developing economically viable plant varieties, continuing by examining grain production issues at the farm level (including pest management, drought resistance, and fertilizer use) in the context of market and agricultural policy conditions, then investigating grain handling, processing, and marketing channels beyond the farm, and concluding by investigating end user issues in both domestic and overseas markets.

The course is a multi-disciplinary experience for students who are majoring in plant science, biology, land resources and environmental sciences, agricultural business, and economics. Throughout the course, students will be heavily involved in field trip experiences -- with bench scientists at the genetics laboratory and the plant growth center, at off-campus experiment station facilities, at dry-land farm operations, at county elevators, at major grain export terminals, at regional milling and baking operations, in milling and grain handling corporations, and in government offices in importing countries.

The course will draw on invited presenters, providing the students with a genuinely complete view of the complex interactions between science, technology and economics that are required to understand a major agricultural industry.

The course will provide students with a genuine multi-cultural experience. Students will participate in a week-long field trip to Asia (China), a potential buyer of and competitor for U.S. wheat and barley.

*Course Work, Evaluation, and Grades*

This is a seminar course. Students are required to attend all class meetings, to participate in one two-day field trip to the Great Falls area during the semester, and to participate in the international field trip to Asia. One-half of each student's grade will be determined by class participation.

Each student is required to prepare a research paper and to participate in an in-class presentations of their research findings.

Students will carry out these projects on a team basis, with teams consisting of 3-4 students. The term paper and presentation will count for one-half of each student's grade and will itself be graded on a 100 point scale.

A student's overall grade will be the simply average of the student's scores for class participation and for the term paper and presentation. Letter grades will be allocated as follows:

### *Course Outline and Class Schedule*

The seminar will meet once a week for two hours during the semester and for ten days during mid-March (during spring break). There will be a two-day field trip to Great Falls in late-February.

Jan. 17: An overview of the course (Dave Buschena).

The Science of Developing New Varieties (Phil Bruckner, MSU Plant Sciences and Plant Pathology)

Health Issues for Travel in China. Catherine Ebelke (5:30). Student Health Service.

Jan. 24: The role of basic scientific research. (Luther Talbert, MSU Plant Sciences and Plant Pathology)

Plant Variety Protection: the Role of Science, Private Industry, and Patent Laws (Dan Biggerstaff, Westbred L.L.C.).

Jan. 31: Site Tours of Facilities in the MSU Plant Growth and Plant Biosciences Complex.0

The Role of Genetic Modification in plant breeding (Mike Giroux, MSU Plant Genetics Scientist).

Bringing Basic Science into the Plant: Tour of the Plant Growth Center (David Baumbauer).

The Science of Developing Grain Quality Attributes: The Cereal Quality Laboratory (Deanna Nash)

Feb. 7: Notes on Travel in China. Chengci Chen, MSU Moccasin Station and Dave Buschena.

Brief student presentations on topics related to China's economy and grain industry.

Feb. 14: Science and Grain Production (I): Soil Management, Rotational Concerns, Grain Yields, and Grain Quality (Perry Miller, agronomist and Clain Jones, soil scientist of MSU's Land Resources and Environmental Sciences Dept.)

Feb. 21: Marketing Montana's Grain (Dave Buschena, Dept. of Ag. Econ.

Grain and Politics: Representatives from Montana's Producer Organizations

Feb. 28: World Wheat Markets: Linking international consumers and Montana Wheat and Barley Producers. (Vince Smith, MSU Dept. of Ag. Econ. and Econ.)

Grain Production, Marketing, and Policy in Canada: (Richard Gray, University of Saskatchewan Agricultural Economist). Science and Grain Production (II):

Mar 6-15: International Trip to China, with a stop in Portland en route

- Mar. 20: Science and Grain Production (I): Grain Production Practices and the Environment (Will Lanier, MSU Entomologist; Don Mathre, MSU Emeritus Professor of Plant Pathology; and Nina Zidack, MSU Plant Pathologist)
- Mar. 27: Grain Production and Policy in Montana:  
The Montana grain farmer's market and policy planning environment  
(Professor George Haynes and Emeritus Professor James B. Johnson, Dept. of Ag. Econ. and Econ.).
- The Role of State Government, Ron de Yong, Director of the Montana Department of Agriculture.)
- April 3 & 4: Regional Trip to Great Falls: Grain Production, Marketing, and Processing in Practice. Visits to a dry land wheat and feed barley operation, grain processors, grain merchandisers, and commodity groups.
- April 10: Grain Transportation for Montana Wheat and Barley: Kevin Kaufman, BNSF.
- April 17: Grain Production, Marketing, and Processing Internationally: Rick Dusek, Merchandising Director – Grain Marketing. CHS Inc.
- April 24: Final student presentations.

### *Reading List*

Invited speakers may provide a set of readings for each seminar meeting. Students will be required to read these assigned materials before each seminar meeting and to come prepared with questions for the speakers.